63-3-2

TM-(L)-742/006/00

TECHNICAL MEMORANDUM

(TM Series)

ASTIA AVAILABILITY NOTICE

Qualified requesters may obtain copies of this report from ASTIA.

This document was produced by SDC in performance of contract AF 19(628)-1648, Space Systems Division Program, for Space Systems Division, AFSC.

Flight Specific Computer
Program Description
Alarm Clock
(ALACK)
Milestone 11
28 March 1963

By
D. J. Persico

Approved
B. G. Ciaccia

SYSTEM
DEVELOPMENT
CORPORATION
2500 COLORADO AVE.
SANTA MONICA
CALIFORNIA

A-1159

FUNCTION INDENTIFICATION

A. Title: Alarm Clock (ALACK) - Ident. K39, Mod AA.

B. Programmed: D. Horton, 6594th Aerospace Test Wing, Sunnyvale

C. Documented: D. J. Persico, System Development Corporation, March 28 1963.

PURPOSE

ALACK computes the positions of a satellite at specified time increments after acquisition by any of the stations, 1 (COOK), 5 (HULA), and 6 (BOSS).

USAGE

A. The function card format is:

*ALACK A B C

where: A is the vehicle number in decimal

B is the integral start revolution number in decimal

C is the integral stop revolution number in decimal.

B. Input Parameters

The orbit utilized is that which is defined by the parameters on the currently mounted reset tape. In addition, the Acquisition Table generated by a previous operation of the ACQTABLE function must be on the reset tape.

C. Output

The output is all printed on-line. The following output is obtained for each revolution between the input revolution parameters B and C, inclusive. The system times, beginning with the rise time of the first of the three stations (COOK, HULA, and BOSS) to acquire vehicle number A, preceding in 60 second intervals, and terminating with the system time of the last of the three stations to see vehicle number A, are listed chronologically. Parallel with this is a second list giving the latitude of the satellite for the corresponding system time in the first list. Next is a column giving the revolution number to the nearest tenth of vehicle number A for the corresponding system time in the first column. Next are printed two more columns giving the latitude and longitude of the satellite at a system time equal to the system time in the first list, plus a constant delta time ($\Delta_1^* t$). Finally, there are two more columns giving the latitude and longitude of the satellite at a system time equal to the system time in the first column, plus another constant delta time ($\Delta_2^* t$). Interspersed among these outputs are the appropriately labelled rise and fade system times of any of the three stations which acquire vehicle number A on the current revolution. See Appendix B for sample ALACK output.

D. Method

For the 2300 flight series #50, certain vehicle equipment are controlled by a timer mechanism which is activated by real-time commands (RTC's) transmitted during a station pass. The geographical area over which the equipment will be operated is a function of the time at which the RTC was sent. The position of the satellite is projected forward for two different time intervals: from the time the first of the three stations acquires it and for every 60 seconds thereafter to the time the last of the three stations loses contact. The two revolution numbers on the function card delimit the procedure.

File 2 of the currently mounted reset tape is read into core. For each revolution between the input revolution parameters B and C, inclusive, ALACK searches the Acquisition Table for the stations COOK, HULA, and BOSS. If none of these stations have an entry in the table for the current revolution, this implies that there were no look requirements for any of the stations on the current revolution. In this case, ALACK prints out the comment "NO STATION ACQUISITION". The revolution number counter is incremented by one and, if it does not exceed the input stop revolution parameter C, a search is again made of the Acquisition Table.

If some K of the stations acquire the satellite on some revolution not exceeding the input stop revolution, $1 \leq K \leq 3$, the rise times and set times are computed from data in the Acquisition Table by the formulae:

$$\text{rise time} = \text{mid-pass time} - [\text{ duration }/2\ ]$$
$$\text{set time} = \text{mid-pass time} + [\text{ duration }/2\ ]$$

These 2K times are then sorted in chronological order

$$A\ :\ t_1 \leq t_2 \leq \text{-----------------} \leq t_{2K}$$

where: t_1 is the rise time of the first station acquiring the satellite

t_{2K} is the set time of the last station to see the satellite.

Let m be a positive integer such that:

$$t_1 + 60\ (m-1) \leq t_{2K} < t_1 + 60m.$$

Then for each time:

$$B\ :\ t_1 + 60j\ ,\ j=0,\ 1,\ 2,\ ---,\ m-1$$

ALACK computes and prints on-line the following quantities:

a) latitude of the satellite and corresponding system time
b) latitude and longitude of the satellite at time $t_1 + 60j + \Delta_1 t$, or at time $t_1 + 60j + \Delta_2 t$ depending on the direction of satellite motion
c) latitude and longitude of the satellite at time $t_1 + 60j + \Delta_1 t + \Delta_3 t$, or at time $t_1 + 60j + \Delta_2 t + \Delta_3 t$ depending on which time was used in b).

These three time increments, $\Delta_1 t$, $\Delta_2 t$, and $\Delta_3 t$, are entered into the program by octal overloads. The time values A and B are sorted chronologically. Corresponding to the times A there is printed the station name, event (rise or fade), system time, and satellite latitude. In case for some p, q

$$t_1 + 60p = t_q$$

the second type of printout predominates. This completes the processing for the current revolution. The revolution number counter is incremented by one and the processing repeated.

The direction of satellite motion referred to in b) is determined as follows. Each of the times in the set B which are not in the set A is entered into the reference pool cell TAU and the subroutine TTE executed. TTE computes the azimuth of the satellite's velocity vector and stores this value in the reference pool cell AZM. If

$$90^\circ \leq \text{value of AZM in degrees} < 270^\circ,$$

then the satellite is travelling North to South. If any other inequality obtains, the satellite is travelling South to North.

The latitudes and longitudes referred to in a), b), and c) are determined as follows. The time at which the position is desired is entered into the reference pool cell TAU and the subroutine TTE executed. TTE computes the right ascension and desired latitude of the satellite and stores these values in the reference pool cells RA and LAT respectively. The right ascension (RA) is then converted to satellite longitude by the operation of the RALONG subroutine.

RESTRICTIONS

A. The function ACQTABLE must have been executed prior to ALACK operation.
B. ALACK computes satellite position for station number 1 (COOK), station number 5 (HULA), and station number 6 (BOSS), only.
C. The contents of index registers 1, 2, 4, and 6 are destroyed.
D. ALACK uses subroutines RESET, OUTERR, SUBERR, SETUP, OUTPUT, RALONG, TTE, and MACGUT.
E. Error halts will occur if errors are encountered in subroutines SETUP, TTE, and MACGUT. Prior to program halt, the subroutine SUBERR is executed and an on-line console scoop will be printed on the CDC 1612 printer. In a like manner, an error encountered in the

output subroutine will result in the execution of the OUTERR subroutine and a program halt.

F. Reference pool items AZM, CLOCK, LAT, REV, RA, and TAU are used by ALACK. Additional reference pool items used or set by ALACK system subroutines are defined in the documents listed in the REFERENCE section.

STORAGE REQUIREMENTS

A. Space Allocation

Program	176_{10}	cells
Constants	27_{10}	cells
Temporary Storage	51_{10}	cells
TOTAL	254_{10}	cells

In addition, 2 cells of COMMON are used as temporary storage.

B. Program Constants

TAG	VALUE	FORMAT	DESCRIPTION
*A1	Classified	Floating Point	Classified
*A2	Classified	Floating Point	Classified
*A3	Classified	Floating Point	Classified
CK		BCD	A three word buffer containing the BCD names COOK, HULA, BOSS
N		BCD	The BCD char. N
S		BCD	The BCD char. S
E		BCD	The BCD char. E
W		BCD	The BCD char. W
RADDEG	57.2957795131	Floating Point	Conversion factor for radians to degrees.
FXFL	204440000000000	OCT	Conversion factor for fixed pt. to floating pt.

* These values are obtained from the 6594th Aerospace Test Wing, Sunnyvale.

TAG	VALUE	FORMAT	DESCRIPTION
F60	60	Floating Point	Time increment
MZERO	-0	OCT	Used for negating
PI/2	$\pi/2$	Floating Point	90 degrees
PI	π	Floating Point	180 degrees
RISE		BCD	BCD word RISE
FADE		BCD	BCD word FADE
NOACQ		BCD	BCD statement NO STATION ACQUISITION (3 words)
HEAD		BCD	6 word BCD heading

C. Temporary Storage

TAG	LENGTH	DESCRIPTION
COM	3	Contains the event time, station name, and "RISE" or "SET"
STAREV	1	Start revolution number
STOREV	1	Stop revolution number
REVSTN	1	Revolution number counter
STASTN	1	Station number
FINFLG	1	Indicates end of acquisition table
STAFLG	1	Indicates a relevant station has been found on a relevant revolution
COOKFLG	3	Stations which acquire on this revolution
COOKRISE	3	Rise times
COOKSET	3	Set times
CURRENT	1	Time counter
EARLY	6	Rise and set times sorted chronologically
DELTA1	2	Two time increments
BCD1	6	Station names corresponding to times in the buffer EARLY

TAG	LENGTH	DESCRIPTION
BCD3	6	Words "RISE" or "FADE" corresponding to the event in the buffer EARLY
LD	1	"N" or "S" depending on latitude at time CURRENT
LATO	1	Latitude
STMO	1	System time
LD1	2	"N" or "S" depending on latitude at time CURRENT plus two increments
LONGO1	2	Longitude at time CURRENT plus two increments
LG1	2	"E" or "W" depending on longitudes in buffer LONGO1
CL1	2	Latitudes at time CURRENT plus two increments
TARGET	1	Always contains zero
COMMON+1	1	Duration and mid-time
COMMON+2	1	[Duration /2]

VALIDATION TESTS

In Appendix B are three test cases of ALACK. The relevant Acquisition Table is shown on page 12. On page 13 is Test Case 1. The function card used is

*ALACK 2314 1 6

On revolution number 1, only COOK acquires vehicle number 2314 of the three stations COOK, HULA, and BOSS. On revolutions 2 through 5, none of the three stations acquire the satellite. On revolution number 6, only BOSS acquires the satellite. The rise and fade times listed can be readily verified.

On page 15 is Test Case 2. The function card used is

*ALACK 2314 1 7

The output through revolution number 6 is identical with that of Test Case 1. On revolution number 7, only BOSS acquires vehicle number 2314.

On page 18 is Test Case 3. The function card used is

*ALACK 2314 1 8

The output is identical with that of Test Case 2 through revolution number 7. On revolution number 8, only COOK acquires the vehicle.

TIMING

No general timing formula can be explicitly stated. The running time is a function of:

1) the difference between the stop and start revolution numbers on the function card
2) the number of stations acquiring the vehicle on a revolution
3) length of time the acquiring stations see the vehicle.

In Test Case 1 there were only two stations acquiring the vehicle across 6 revolutions. The satellite was in sight a total of 1032 seconds. This case took 9.102 seconds to execute. Test Case 2 ran for 11.737 seconds. The difference in these two times is 2.635 seconds. Since the calculations are precisely the same for the first six revolutions, the extra time is that which revolution seven required. For this revolution, the total acquisition time is 628 seconds. Finally, revolution eight of Test Case 3 required 2.998 seconds to execute since all of Test Case 3 required 14.735 seconds. The total acquisition time on revolution eight is 668 seconds.

REFERENCES

TM-714/004/00, Milestone 11, Convert Machine Time to Universal Time and System Time (MACGUT), System Development Corporation, 18 May 1962.

TM-714/019/00A, Milestone 11, Initialize Station and Earth Constants (SETUP), System Development Corporation, 2 January 1963.

TM-714/030/00, Milestone 11, Generate, Update, and Read the Reset Tape (RESET), System Development Corporation, 4 December 1962.

TM-714/021/00, Milestone 11, Convert Right Ascension to Longitude (RALONG), System Development Corporation, 17 September 1962.

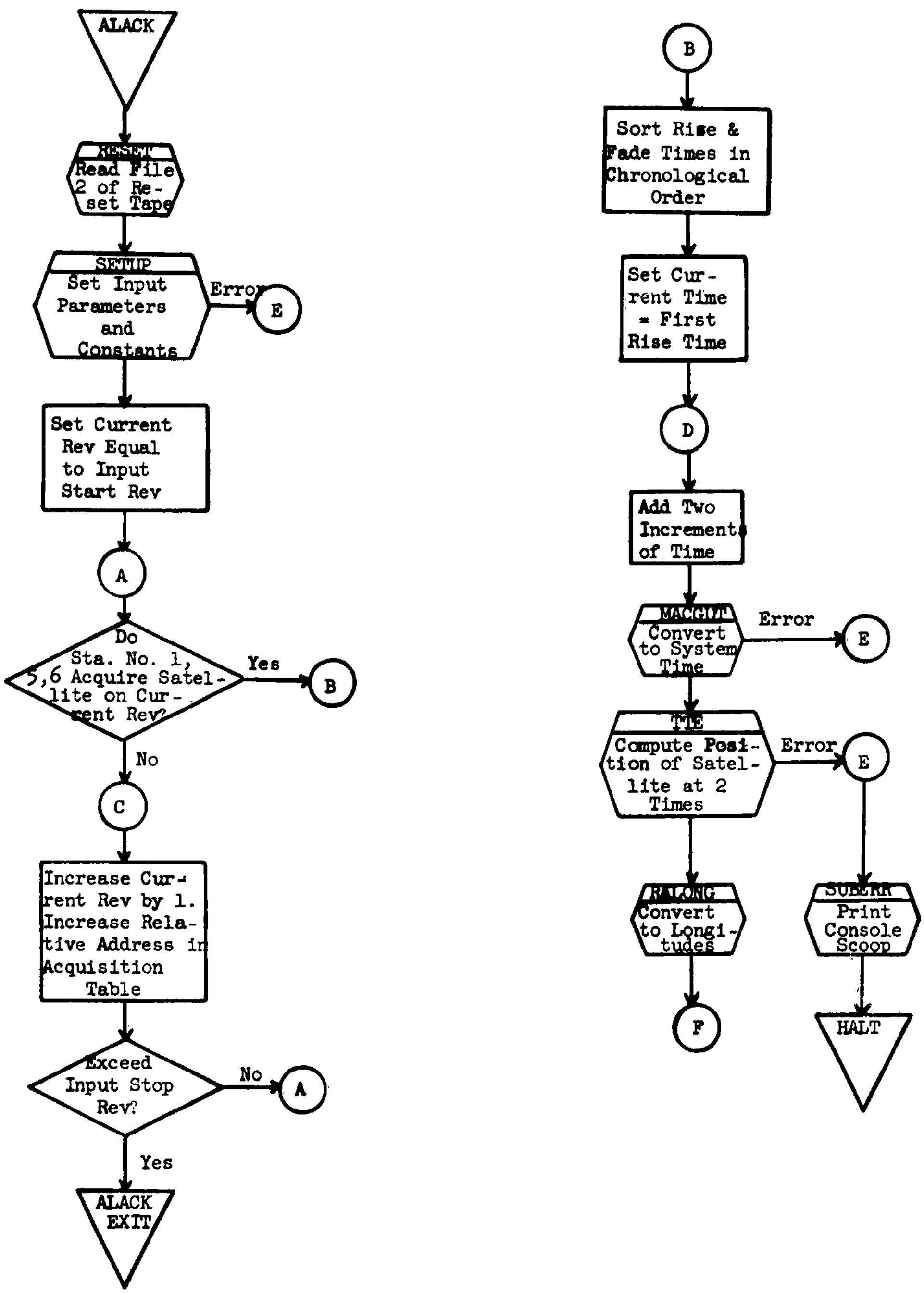
TM-705/033/00, SCF Computer Program Systems Manual, Generalized Output Routine (OUTPUT), System Development Corporation, 16 January 1963.

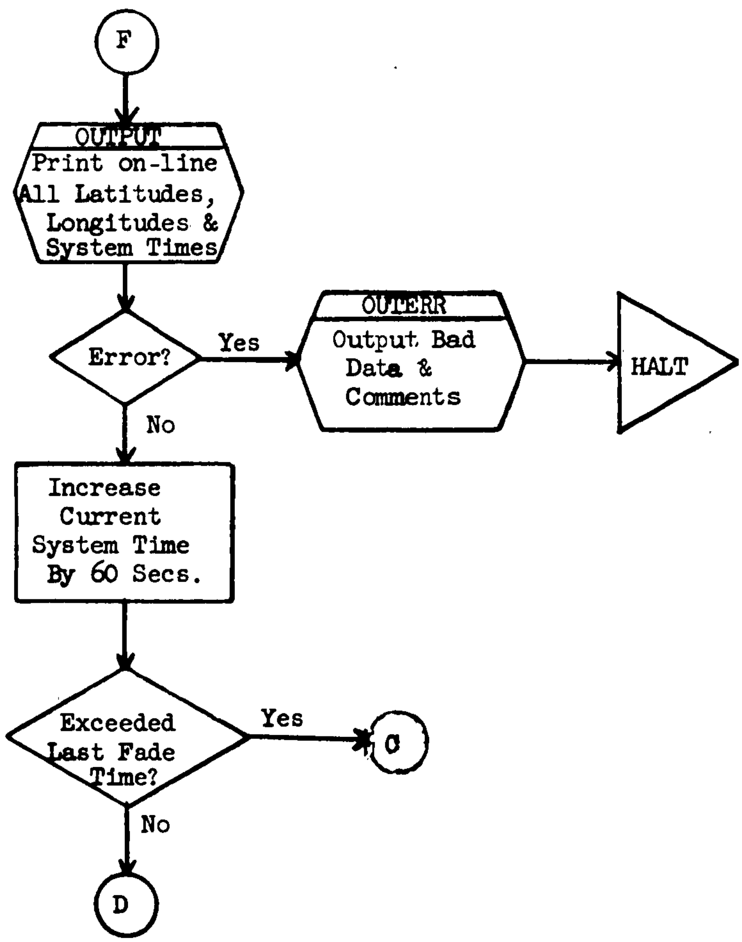
TM-715/032/00, Milestone 11, Generalized Output Error Routine (OUTERR), System Development Corporation, 7 December 1962.

LMSD-447578, page 55.05.53, Systems Manual Subroutine Description for TTE, Lockheed Missile and Space Company, 20 February 1962.

APPENDIX A

FLOW CHARTS




F
OUTPUT
Print on-line
All Latitudes,
Longitudes &
System Times
Error?
Yes
OUTERR
Output Bad
Data &
Comments
HALT
No
Increase
Current
System Time
By 60 Secs.
Exceeded
Last Fade
Time?
Yes
G
No
D

APPENDIX B

ACQUISITION TABLE
VEHICLE 2314 RUN NO.TESTCASE
MIN.DUR. 120

JUNE 1,1963

REV	STATION		MID TIME	DURATION	MAX ELEV
1.3	4	KODI	1 42 20	711	73.07
1.4	20	HUNTS	1 47 40	559	10.37
1.4	1	COOK	1 48 34	356	3.21
2.3	4	KODI	3 17 23	610	15.68
2.4	20	HUNTS	3 23 21	686	38.11
6.1	6	BOSS	9 15 25	677	31.90
7.1	6	BOSS	10 51 2	629	16.84
8.1	1	COOK	12 22 44	669	28.94
9.1	20	HUNTS	13 57 43	233	1.25
9.1	1	COOK	13 58 17	597	13.38
9.2	4	KODI	14 3 32	602	14.81
10.1	20	HUNTS	15 32 22	704	70.41
10.2	4	KODI	15 38 33	711	77.90
11.1	20	HUNTS	17 8 18	450	5.34
11.2	4	KODI	17 14 46	605	13.55
12.2	4	KODI	18 52 14	273	1.59
12.3	6	BOSS	19 7 3	474	6.09
13.4	6	BOSS	20 43 13	708	85.22
14.3	4	KODI	22 9 14	186	.71
14.4	6	BOSS	22 18 0	456	5.94
14.4	1	COOK	22 18 33	214	.97
15.3	4	KODI	23 46 53	574	10.89
15.4	1	COOK	23 54 47	703	59.02

JUNE 2,1963

REV	STATION		MID TIME	DURATION	MAX ELEV
16.3	4	KODI	1 23 17	709	57.59
16.4	20	HUNTS	1 28 33	499	7.16
16.4	1	COOK	1 29 42	456	5.93
17.3	4	KODI	2 58 28	634	19.19
17.4	20	HUNTS	3 4 23	699	54.98

Test Case 1

VEH 2314 REV 1.0

COOK RISE	6336.0	45.8N					
	6396.0	42.1N	1.4	34.6N	143.9W	30.9N	143.4W
	6456.0	38.4N	1.4	30.9N	143.4W	27.1N	143.0W
	6516.0	34.6N	1.4	27.1N	143.0W	23.4N	142.6W
	6576.0	30.9N	1.4	23.4N	142.6W	19.6N	142.2W
	6636.0	27.1N	1.4	19.6N	142.2W	15.6N	141.8W
LOOK FADE	6692.0	23.6N					

VEH 2314 REV 2.0

NO STATION ACQUISITION

VEH 2314 REV 3.0

NO STATION ACQUISITION

Test Case 1 (cont.)

VEH 2314 REV 4.0

NO STATION ACQUISITION

VEH 2314 REV 5.0

NO STATION ACQUISITION

VEH 2314 REV 6.0

BOSS RISE	32987.0	21.2N						
	33047.0	24.9N	6.1	39.9N	63.6W	43.6N	62.8W
	33107.0	28.7N	6.1	43.6N	62.8W	47.4N	62.0W
	33167.0	32.4N	6.1	47.4N	62.0W	51.1N	61.0W
	33227.0	36.2N	6.1	51.1N	61.0W	54.8N	59.7W
	33287.0	39.9N	6.1	54.8N	59.7W	58.5N	58.2W
	33347.0	43.6N	6.2	58.5N	58.2W	62.1N	56.2W
	33407.0	47.4N	6.2	62.1N	56.2W	65.7N	53.7W
	33467.0	51.1N	6.2	65.7N	53.7W	69.2N	50.3W
	33527.0	54.8N	6.2	69.2N	50.3W	72.6N	45.4W
	33587.0	58.5N	6.2	72.6N	45.4W	75.9N	38.2W
	33647.0	62.1N	6.2	75.9N	38.2W	78.8N	27.1W
BOSS FADE	33663.0	63.1N						

Test Case 2

VEH 2314 REV 1.0

COOK RISE	6336.0	45.8N						
	6396.0	42.1N	1.4	34.6N	143.9W		30.9N	143.4W
	6456.0	38.4N	1.4	30.9N	143.4W		27.1N	143.0W
	6516.0	34.6N	1.4	27.1N	143.0W		23.4N	142.6W
	6576.0	30.9N	1.4	23.4N	142.6W		19.6N	142.2W
	6636.0	27.1N	1.4	19.6N	142.2W		15.6N	141.8W
COOK FADE	6692.0	23.6N						

VEH 2314 REV 2.0

NO STATION ACQUISITION

VEH 2314 REV 3.0

NO STATION ACQUISITION

Test Case 2 (cont.)

VEH 2314 REV 4.0

NO STATION ACQUISITION

VEH 2314 REV 5.0

NO STATION ACQUISITION

VEH 2314 REV 6.0

GOSS RISE	32987.0	21.2N						
	33047.0	24.9N	6.1	39.9N	63.6W	43.6N	62.8W
	33107.0	28.7N	6.1	43.6N	62.8W	47.4N	62.0W
	33167.0	32.4N	6.1	47.4N	62.0W	51.1N	61.0W
	33227.0	36.2N	6.1	51.1N	61.0W	54.8N	59.7W
	33287.0	39.9N	6.1	54.8N	59.7W	58.5N	58.2W
	33347.0	43.6N	6.2	58.5N	58.2W	62.1N	56.2W
	33407.0	47.4N	6.2	62.1N	56.2W	65.7N	53.7W
	33467.0	51.1N	6.2	65.7N	53.7W	69.2N	50.3W
	33527.0	54.8N	6.2	69.2N	50.3W	72.6N	45.4W
	33587.0	58.5N	6.2	72.6N	45.4W	75.9N	38.2W
	33647.0	62.1N	6.2	75.9N	38.2W	78.6N	27.1W
GOSS FADE	33663.0	63.1N						

Test Case 2 (cont.)

VEH 2314 REV 7.0

BOSS RISE	38748.0	26.0N					
	38808.0	29.7N	7.1	44.7N	86.4W	48.4N	85.5W
	38868.0	33.5N	7.1	48.4N	85.5W	52.1N	84.5W
	38928.0	37.2N	7.1	52.1N	84.5W	55.8N	83.2W
	38988.0	41.0N	7.2	55.8N	83.2W	59.5N	81.5W
	39048.0	44.7N	7.2	59.5N	81.5W	63.1N	79.4W
	39108.0	48.4N	7.2	63.1N	79.4W	66.7N	76.7W
	39168.0	52.1N	7.2	66.7N	76.7W	70.2N	72.9W
	39228.0	55.8N	7.2	70.2N	72.9W	73.6N	67.5W
	39288.0	59.5N	7.2	73.6N	67.5W	76.7N	59.4W
	39348.0	63.1N	7.2	76.7N	59.4W	79.5N	46.8W
BOSS FADE	39376.0	64.8N					

Test Case 3

VEH 2314 REV 1.0

COOK RISE	6336.0	45.8N					
	6396.0	42.1N	1.4	34.6N	143.9W	30.9N	143.4W
	6456.0	38.4N	1.4	30.9N	143.4W	27.1N	143.0W
	6516.0	34.6N	1.4	27.1N	143.0W	23.4N	142.6W
	6576.0	30.9N	1.4	23.4N	142.6W	19.6N	142.2W
	6636.0	27.1N	1.4	19.6N	142.2W	15.8N	141.8W
COOK FADE	6692.0	23.6N					

Test Case 3 (cont.)

```
VEH 2314   REV   2.0
           NO STATION ACQUISITION


VEH 2314   REV   3.0
           NO STATION ACQUISITION


VEH 2314   REV   4.0
           NO STATION ACQUISITION
```

Test Case 3 (cont.)

VEH 2314 REV 5,0

NO STATION ACQUISITION

VEH 2314 REV 6,0

BOSS RISE	32987,0	21,2N						
	33047,0	24,9N	6,1	39,9N	63,6W		43,6N	62,8W
	33107,0	28,7N	6,1	43,6N	62,8W		47,4N	62,0W
	33167,0	32,4N	6,1	47,4N	62,0W		51,1N	61,0W
	33227,0	36,2N	6,1	51,1N	61,0W		54,8N	59,7W
	33287,0	39,9N	6,1	54,8N	59,7W		58,5N	58,2W
	33347,0	43,6N	6,2	58,5N	58,2W		62,1N	56,2W
	33407,0	47,4N	6,2	62,1N	56,2W		65,7N	53,7W
	33467,0	51,1N	6,2	65,7N	53,7W		69,2N	50,3W
	33527,0	54,8N	6,2	69,2N	50,3W		72,6N	45,4W
	33587,0	58,5N	6,2	72,6N	45,4W		75,9N	38,2W
	33647,0	62,1N	6,2	75,9N	38,2W		78,9N	27,1W
BOSS FADE	33663,0	63,1N						

VEH 2314 REV 7,0

BOSS RISE	38740,0	26,0N						
	38800,0	29,7N	7,1	44,7N	86,4W		48,4N	85,5W
	38860,0	33,5N	7,1	48,4N	85,5W		52,1N	84,5W
	38920,0	37,2N	7,1	52,1N	84,5W		55,8N	83,2W
	38980,0	41,0N	7,2	55,8N	83,2W		59,5N	81,5W
	39040,0	44,7N	7,2	59,5N	81,5W		63,1N	79,4W

Test Case 3 (cont.)

	39108.0	48.4N	7.2	63.1N	79.4W	66.7N	76.7W
	39168.0	52.1N	7.2	66.7N	76.7W	70.2N	72.9W
	39228.0	55.8N	7.2	70.2N	72.9W	73.6N	67.5W
	39288.0	59.5N	7.2	73.6N	67.5W	76.7N	59.4W
	39348.0	63.1N	7.2	76.7N	59.4W	79.5N	46.8W
BOSS FADE	39376.0	64.8N					

VEH 2314 REV 8.0

COOK RISE	44230.0	13.3N					
	44290.0	17.1N	8.1	32.1N	112.4W	35.8N	111.9W
	44350.0	20.8N	8.1	35.8N	111.9W	39.6N	111.3W
	44410.0	24.6N	8.1	39.6N	111.3W	43.3N	110.5W
	44470.0	28.3N	8.1	43.3N	110.5W	47.0N	109.7W
	44530.0	32.1N	8.1	47.0N	109.7W	50.7N	108.7W
	44590.0	35.8N	8.1	50.7N	108.7W	54.4N	107.5W
	44650.0	39.6N	8.1	54.4N	107.5W	58.1N	106.0W
	44710.0	43.3N	8.2	58.1N	106.0W	61.8N	104.1W
	44770.0	47.0N	8.2	61.8N	104.1W	65.4N	101.6W
	44830.0	50.7N	8.2	65.4N	101.6W	68.9N	98.3W
	44890.0	54.4N	8.2	68.9N	98.3W	72.3N	93.6W
COOK FADE	44898.0	54.9N					

External Distribution List

Space Systems Division
(Contracting Agency)
Major C. R. Bond (SSOCD)

6594th Aerospace Test Wing
(Contracting Agency)
Col. A. W. Dill (TWRD)
Lt. Col. M. S. McDowell (TWRU) (2)
TWACS (6)

PIR-E1 (Lockheed)
N. N. Epstein
C. H. Finnie
H. F. Grover
W. E. Moorman (5)
461 Program Office
698BK Program Office

PIR-E2 (Philco)
J. A. Bean
J. A. Isaacs
R. Morrison
S. M. Stanley

PIR-E3 (LFE)
D. F. Criley
K. B. Williams

PIR-E8 (Mellonics)
F. Druding

PIR-E5 (Aerospace)
F. M. Adair
R. O. Brandsberg
L. H. Garcia
G. J. Hansen
C. S. Hoff
L. J. Kreisberg
T. R. Parkin
E. E. Retzlaff
H. M. Reynolds
D. Saadeh
R. G. Stephenson
V. White

PIR-E4 (GE - Sunnyvale)
J. Farrentine
N. Kirby

PIR-E4 (GE - Santa Clara)
D. Alexander

PIR-E4 (GE - Box 8555)
J. S. Brainard
R. J. Katucki
J. D. Selby

PIR-E4 (GE - 3198 Chestnut)
J. F. Butler
H. D. Gilman

PIR-E4 (GE - Bethesda)
W. L. Massey

PIR-E4 (GE - Box 8661)
J. D. Rogers

UNCLASSIFIED

System Development Corporation,
Santa Monica, California
FLIGHT SPECIFIC COMPUTER PROGRAM
DESCRIPTION ALARM CLOCK (ALACK)
MILESTONE 11.
Scientific rept., TM(L)-742/006/00,
by D. J. Persico, 28 March 1963, 21p.
(Contract AF 19(628)-1648, Space Systems
Division Program, for Space Systems
Division, AFSC)

Unclassified report

DESCRIPTORS: Programming (Computers).
Satellite Networks.

Reports that ALACK (Alarm Clock)
computes the positions of a

UNCLASSIFIED

---

satellite at specified time
increments after acquisition by any
of the stations, 1 (COOK), 5 (HULA),
and 6 (BOSS).

UNCLASSIFIED

UNCLASSIFIED